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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,811	05/13/2005	Kia Silverbrook	MJT003USNP	9045

24011 7590 06/22/2007
SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER	
LEGESSE, HENOK D	

ART UNIT	PAPER NUMBER
2861	

MAIL DATE	DELIVERY MODE
06/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,811	SILVERBROOK, KIA	
	Examiner	Art Unit	
	Henok Legesse	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 1-44 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-44 of prior U.S. Patent No. US 6,672,709 B1. This is a double patenting rejection.

Below is a table of comparison between independent claims of patent US 6,672,709 B1 and the instant application.

Patent (US 6,672,709 B1)	Instant Application
1. An ink jet printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at an ambient temperature, and wherein	1. An ink jet printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at an ambient temperature, and wherein

each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a said drop, from a temperature equal to said ambient temperature to said boiling point.	each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a said drop, from a temperature equal to said ambient temperature to said boiling point.
16. A printer system incorporating a printhead, the printhead comprising:	16. A printer system incorporating a printhead, the printhead comprising:

a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at an ambient temperature, and wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a	a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at an ambient temperature, and wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a

said drop, from a temperature equal to said ambient temperature to said boiling point.	said drop, from a temperature equal to said ambient temperature to said boiling point.
31. A method of ejecting a drop of an ejectable fluid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: receiving a supply of an ejectable liquid, at an ambient temperature, to the printhead; applying heat energy to at least one heater element corresponding to a said nozzle; heating that at least one heater dement, by the step of applying heat energy, so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element to a temperature above the boiling point of the	31. A method of ejecting a drop of an ejectable fluid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: receiving a supply of an ejectable liquid, at an ambient temperature, to the printhead; applying heat energy to at least one heater element corresponding to a said nozzle; heating that at least one heater dement, by the step of applying heat energy, so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element to a temperature above the boiling point of the

bubble forming liquid; generating a gas bubble in the bubble forming liquid by said step of heating; and causing a drop of the ejectable liquid to be ejected through the nozzle corresponding to the at least one heater element by said step of generating a gas bubble, wherein said applied heat energy is less than the energy required to heat a volume of said ejectable liquid equal to the volume of said drop, from a temperature equal to said ambient temperature to said boiling point.	bubble forming liquid; generating a gas bubble in the bubble forming liquid by said step of heating; and causing a drop of the ejectable liquid to be ejected through the nozzle corresponding to the at least one heater element by said step of generating a gas bubble, wherein said applied heat energy is less than the energy required to heat a volume of said ejectable liquid equal to the volume of said drop, from a temperature equal to said ambient temperature to said boiling point.

Claims 1-44 of the instant application are taught by claims 1-44 of patent ('709). This is a statutory double patenting rejection.

3. Claims 1,4,6,7,9,11-16,19,21,22,24,27-32,35,36,38,40,41,42,44 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1,3,6,7,8,9, 11-15,17, 20,21,22, 23, 25-28,29,30,33-36,39,40, and 41 of prior U.S. Patent No. US 6,824,246 B2. This is a double patenting rejection.

Below is a table of comparison between independent claims of patent US 6,824,246 B2 and the instant application.

U.S. Patent No. US 6,824,246 B2	Instant Application
1.An ink jet printhead comprising: a structure being less than 5 microns thick; a plurality of nozzles incorporated on the structure; and at least one respective heater element corresponding to each nozzle, wherein each element is arranged for being in thermal contact with a bubble forming liquid, and each element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the bubble forming liquid through the nozzle corresponding to that element. 7. The printhead of claim 1 configured to	1. An ink jet printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at an ambient temperature, and wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the

receive a supply of the bubble forming liquid at an ambient temperature, wherein each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of said drop is less than the energy required to heat a volume of said bubble forming liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point.	ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a said drop, from a temperature equal to said ambient temperature to said boiling point. 11. The printhead of claim 1 comprising a structure which is less than 10 microns thick, said nozzles being incorporated on the structure.
15. A printer system incorporating a printhead, the printhead comprising: a structure being less than 5 microns thick; a plurality of nozzles incorporated on the structure; and at least one respective heater element corresponding to each nozzle, wherein each element is arranged	16. A printer system incorporating a printhead, the printhead comprising: a plurality of nozzles; and at least one respective heater element corresponding to each nozzle, wherein the printhead is configured to receive a supply of an ejectable liquid at

for being in thermal contact with a bubble forming liquid, and each element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the bubble forming liquid through the nozzle corresponding to that element. 21. A printer system of claim 15 wherein the printhead is configured to receive a supply of the bubble forming liquid at an ambient temperature, and wherein each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of said drop is less than the energy required to heat a volume of said bubble forming liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point.	an ambient temperature, and wherein each heater element is arranged for being in thermal contact with a bubble forming liquid, each heater element is configured to heat at least part of the bubble forming liquid to a temperature above its boiling point to form a gas bubble therein thereby to cause the ejection of a drop of the ejectable liquid through the corresponding nozzle; and each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of a said drop, from a temperature equal to said ambient temperature to said boiling point. 26. The system of claim 16 comprising a

	structure which is less than 10 microns thick, said nozzles being incorporated on the structure.
29. A method of ejecting a drop of a bubble forming liquid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: providing the printhead, the printhead having a structure which is less than 5 micron thick and which incorporates said nozzles thereon; heating at least one element corresponding to a said nozzle so as to heat at least part of the bubble forming liquid which is in thermal contact with the at least one heated element to a temperature above the boiling point of the bubble forming liquid; generating a gas bubble in the bubble	31. A method of ejecting a drop of an ejectable fluid from a printhead, the printhead comprising a plurality of nozzles and at least one respective heater element corresponding to each nozzle, the method comprising the steps of: receiving a supply of an ejectable liquid, at an ambient temperature, to the printhead; applying heat energy to at least one heater element corresponding to a said nozzle; heating that at least one heater dement, by the step of applying heat energy, so as to heat at least part of a bubble forming liquid which is in thermal contact with the at least one heated heater element to a temperature above the boiling point of the

forming liquid by said step of heating; and causing the drop of bubble forming liquid to be ejected through the nozzle corresponding to the at least one heated element by said step of generating a gas bubble. 34. The method of claim 29, comprising, prior to the step of heating at least one heater element, the step of receiving a supply of the bubble forming liquid, at an ambient temperature, to the printhead, wherein the step of heating is effected by applying heat energy to each such heater element, wherein said applied heat energy is less than the energy required to heat a volume of said bubble forming liquid equal to the volume of said drop, from a temperature equal to said ambient temperature to said boiling point.	bubble forming liquid; generating a gas bubble in the bubble forming liquid by said step of heating; and causing a drop of the ejectable liquid to be ejected through the nozzle corresponding to the at least one heater element by said step of generating a gas bubble, wherein said applied heat energy is less than the energy required to heat a volume of said ejectable liquid equal to the volume of said drop, from a temperature equal to said ambient temperature to said boiling point. 40. The method of claim 31 comprising the step of providing the printhead, wherein the printhead has a structure which is less that 10 microns thick and which incorporates said nozzles thereon.

In the instant claims ejectable fluid correspond to bubble forming liquid in the patent ('246).

Claims 1 and 11 of the instant application are taught by claims 1 and 7 of patent ('246) with the exception a thickness of less than 10 microns.

Claims 16 and 26 of the instant application are taught by claims 15 and 21 of patent ('246) with the exception a thickness of less than 10 microns.

Claims 31 and 40 of the instant application are taught by claims 29 and 34 of patent ('246) with the exception a thickness of less than 10 microns.

Claims 4,6,7,9,13,14, and 15 of the instant application are taught by claims 3,6,8,9,12,13, and 14 of patent ('246).

Claims 19, 21,22, 24, 27,28,29, and 30 of the instant application are taught by claims 17, 20,22, 23, 25,26,27, and 28 of patent ('246).

Claims 32,35,36,38,41,42, and 44 of the instant application are taught by claims 30,33,35,36,39,40, and 41 of patent ('246).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to provide a printhead structure having a thickness of less than 10 microns, because the Applicant has not disclosed that these particular thicknesses provide any advantage, solve any particular problem or are provided for any particular purpose. One of ordinary skill in the ink jet art would have expected the Applicant's invention to perform equally well with a nozzle plate thickness of 5 microns, as taught by claims 1, 15, and 29 of patent ('246), or the claimed thickness, because both perform

the same function of improving the droplet ejection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the instant application with the claimed printhead structure thickness, for the purpose of improving ink droplet ejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henok Legesse whose telephone number is (571) 270-1615. The examiner can normally be reached on Mon - FRI, 7:30-5:00, ALT.FRI EST.TIME.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*** H.L.
06/19/2007

MATTHEW LUU
SUPERVISORY PATENT EXAMINER